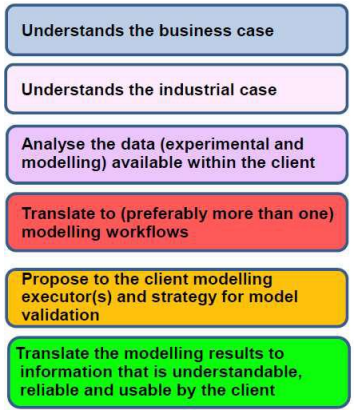
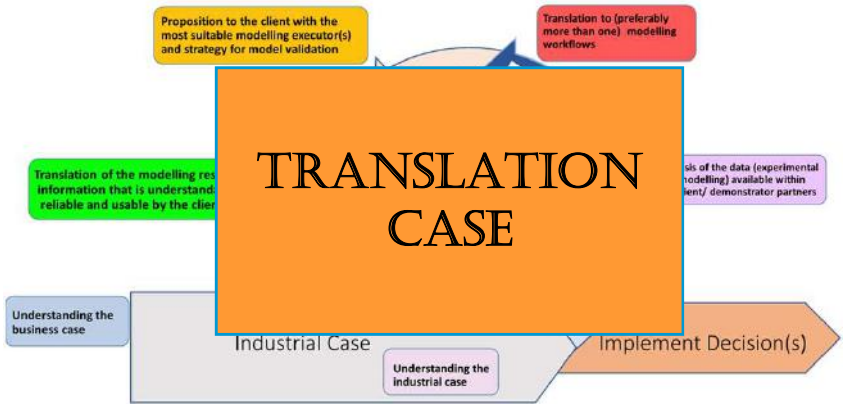
TAXONOMY /ONTOLOGY OF/FOR MODELLING TRANSLATION





Natalia Konchakova and Peter Klein

EC Workshop on Ontology

March, 06, 2019, Brussels

Helmholtz-Zentrum Geesthacht
Zentrum für Material- und Küstenforschung
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WHAT IS THE APPLICATION DOMAIN OF YOUR TAXONOMY AND/OR ONTOLOGY?

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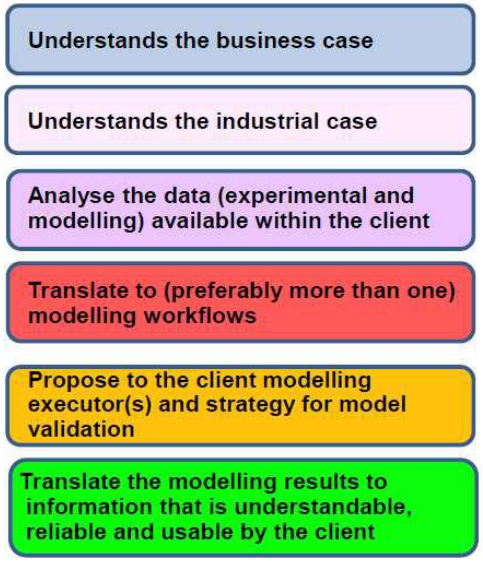
The core domain of the Translation Taxonomy and Ontology is defined by concepts specific for Translators

In this presentation, we focus on the
Taxonomy of Translation

(as the first step for the development of the
Ontology for Translators)

as an ***EMMO compatible complement*** applicable to the interfaces between **Industry**, Modelling, Materials Modelling Software, AI and Characterisation.



- Translators tasks, EMMC Translation guide

WHAT IS THE INTENDED PURPOSE OF THE TAXONOMY AND/OR ONTOLOGY?

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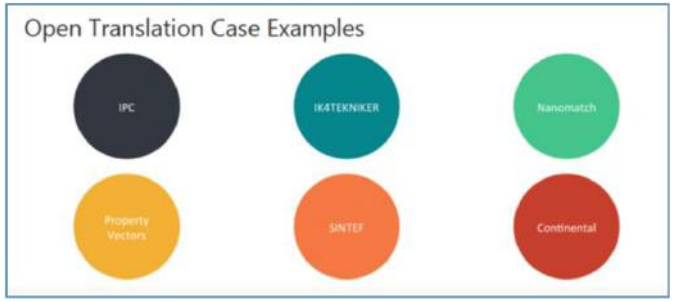
Translation Data Documentation

The presented Taxonomy of Translation has the target to help Translators providing ways to prepare useful standardized documentation of Translation processes, including modelling results interpretation as well as the evaluation of Translation process and economical benefits of modelling projects.

The Translation Ontology should include the possibility of extended relations for the **digital implementation** of the Translation process.



HOW DOES YOUR TAXONOMY AND/OR ONTOLOGY REPRESENT GRANULARITY?

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How do you represent the world:

a. **as a continuum?**
b. **as discrete particles?**
c. **with quantum mechanics?**

The Translation Taxonomy/Ontology can represent different level of granularity depending on modelling aspects of the Translation case. It could be the cases of continuum or atomistic level as well as the multi-scale modelling cases.

WHAT ARE THE CONCEPTS, WITH DEFINITIONS, IN THE UPPER LEVEL OF YOUR TAXONOMY AND/OR ONTOLOGY?

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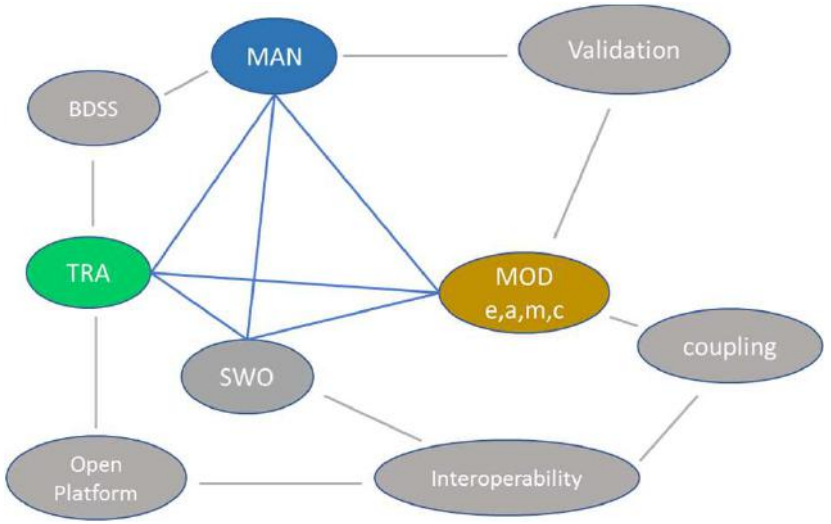
The Upper Translation Ontology is a formal, explicit description of concepts in the field of Translation.

Translation of industrial challenges to materials modelling has the focus to provide a service for European industry for efficient implementation of modelling benefits for industrial innovation, novel manufacturing process and agile product development. To this end:



Semantic interoperability by a bunch of Upper Ontologies in various domains are required

WHAT ARE THE CONCEPTS, WITH DEFINITIONS, IN THE UPPER LEVEL OF YOUR TAXONOMY AND/OR ONTOLOGY?

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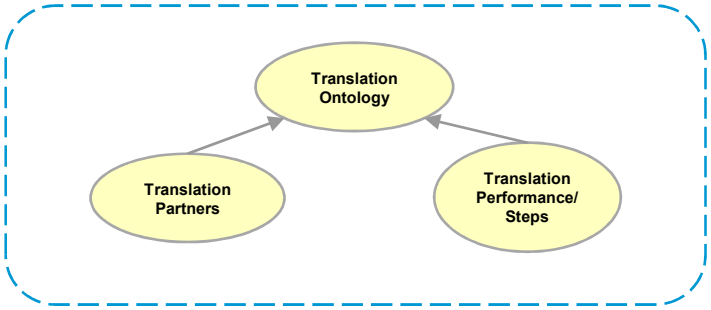
UPPER LEVEL – Translation Case

The materials modelling Translation taxonomy/ontology describes the Translation process and supports the Translation case documentation to use it for industrial needs of materials science (including modelling and manufacturing)



Translation Case

TRANSLATION TAXONOMY/ ONTOLOGY
PRELIMINARY VERSION

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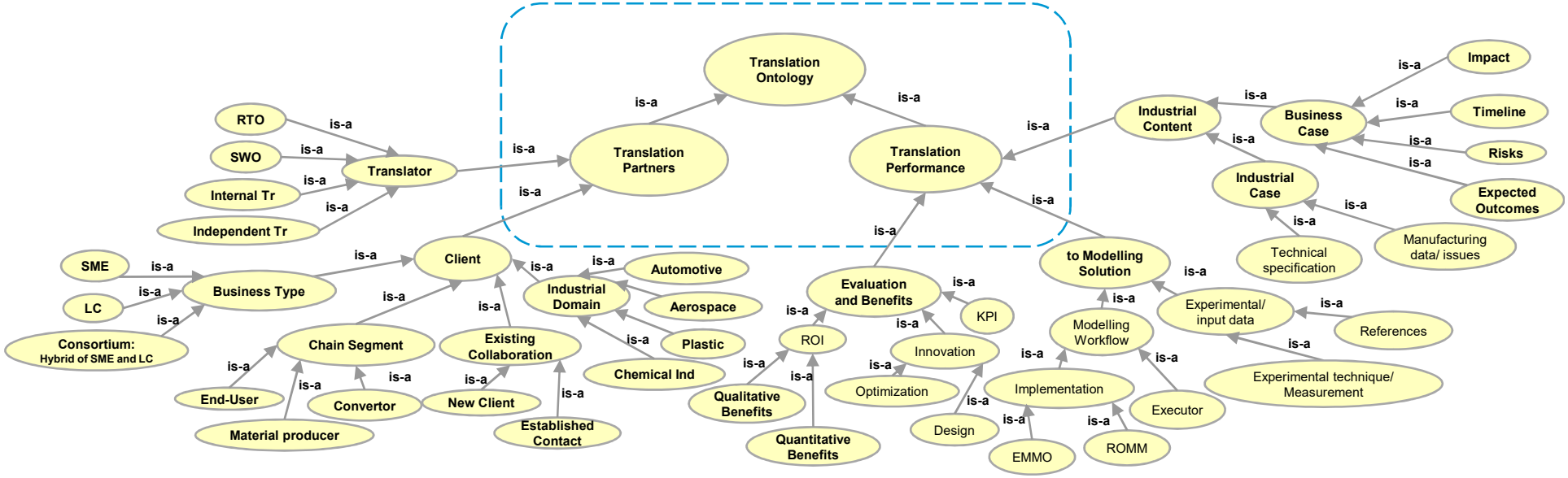
Ongoing work: preliminary version



TRANSLATION TAXONOMY/ ONTOLOGY

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Ongoing work:

- Translation Ontology
  - Translation Partners
    - Translator
      - RTO
      - SWO
      - Internal Translator
      - Independent Translator
    - Client
      - Business Type
        - SME
        - Large Company
        - Consortium: hybrid of SMEs and LCs
      - Chaim Segment
        - End-User
        - Material producer
        - Convertor
      - Existing Collaboration
        - New Client
        - Established Contact
      - Industrial Domain
        - Automotive
        - Aerospace
        - Plastic
        - Chemical Industry
  - Translation Performance
    - Industrial Content
      - Business Case
        - Impact
        - Timeline
        - Risks
        - Expected Outcomes
      - Industrial Case
        - Manufacturing data/ issues
        - Technical specification
    - Modelling Solution
      - Experimental / input Data
        - References
        - Experimental technique/ Measurement
      - Modelling Workflow
        - Implementation
          - ROMM
          - EMMO
        - Executor
    - Evaluation & Client Benefits
      - KPI
      - ROI
        - Qualitative Benefits
        - Quantitative Benefits
      - Innovation
        - Optimization
        - Material/ System Design

WHAT OVERLAPS DO YOU SEE WITH OTHER TAXONOMY AND/OR ONTOLOGIES?

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COMPATIBILITY WITH THE EMMO

- Domain Dependent Ontology
- Interoperability of materials modelling translation ontology / cross scale interoperability (vertical interoperability) for multi-scale modelling case representation
- Development of domain specific languages as instances of the upper ontologies for dedicated industrial sectors